

What is claimed is:

1. A nucleotide sequence of an isoform of an A-chain gene involved in biosynthesizing lectins isolated from Korean mistletoe, comprising SEQ ID NO. 1.

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2. An amino acid sequence deduced from the sequence of claim 1, involved in biosynthesizing lectins isolated from Korean mistletoe, comprising SEQ ID NO 2.

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3. A nucleotide sequence of an isoform of an A-chain gene involved in biosynthesizing lectins isolated from Korean mistletoe, comprising SEQ ID NO. 3.

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4. An amino acid sequence deduced from the sequence of claim 3, involved in biosynthesizing lectins isolated from Korean mistletoe, comprising SEQ ID NO 4.

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5. A nucleotide sequence of an isoform of an A-chain gene involved in biosynthesizing lectins isolated from Korean mistletoe, comprising SEQ ID NO. 5.

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6. An amino acid sequence deduced from the sequence of claim 5, involved in biosynthesizing lectins isolated from Korean mistletoe, comprising SEQ ID NO. 6.

7. A nucleotide sequence of an isoform of a B-chain

gene involved in biosynthesizing lectins isolated from Korean mistletoe, comprising SEQ ID NO. 7.

5 8. An amino acid sequence deduced from the sequence of claim 7, involved in biosynthesizing lectins isolated from Korean mistletoe, comprising SEQ ID NO. 8.

10 9. A nucleotide sequence of an isoform of a B-chain gene involved in biosynthesizing lectins isolated from Korean mistletoe, comprising SEQ ID NO. 9.

15 10. An amino acid sequence deduced from the sequence of claim 9, involved in biosynthesizing lectins isolated from Korean mistletoe, comprising SEQ ID NO. 10.

11. A nucleotide sequence of an isoform of a B-chain gene involved in biosynthesizing lectins isolated from Korean mistletoe, comprising SEQ ID NO. 11.

20 12. An amino acid sequence deduced from the sequence of claim 11, involved in biosynthesizing lectins isolated from Korean mistletoe, comprising SEQ ID NO. 12.

25 13. A lectin isolated from Korean mistletoe.

14. The lectin of claim 13, wherein the lectin is

selected from the group consisting of KML-IIU and KML-IIL.

15. The lectin of claim 14, wherein the lectin is KML-IIU.

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16. The lectin of claim 15, wherein the lectin has a molecular weight of 61.8 kD.

17. The lectin of claim 14, wherein the lectin is KML-IIL.

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18. The lectin of claim 17, wherein the lectin has a molecular weight of 56.4 kD.

19. A method for preparing a lectin isolated from Korean mistletoe comprising separating a lectin fraction extracted from Korean mistletoe by immuno-affinity column chromatography.

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20. The method of claim 19, wherein the lectin fraction is KML-C.

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21. The method of claim 20, wherein the lectin is selected from the group consisting of KML-IIU and KML-IIL.

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22. The method of claim 21, wherein the immuno-

affinity column is a HiTrip NHS activated affinity column
in which 9H7-D10 antibody is immobilized.

23. A method of enhancing immunity comprising
administering to an animal a lectin isolated from Korean
mistletoe.

24. The method of claim 23, wherein the lectin is
selected from the group consisting of KML-IIU OR KML-IIL.

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25. The method of claim 24, wherein the lectin is
KML-IIU.

26. The method of claim 25, wherein the lectin has
a molecular weight of 61.8 kD.

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27. The method of claim 24, wherein the lectin is
KML-IIL.

28. The method of claim 27, wherein the lectin has a
molecular weight of 56.4 kD.

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29. A method of effectuating antitumoral activity,
comprising administering to an animal a lectin isolated
from Korean mistletoe.

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30. The method of claim 29, wherein the lectin is selected from the group consisting of KML-IIU OR KML-IIL.

5 31. The method of claim 30, wherein the lectin is KML-IIU.

32. The method of claim 31, wherein the lectin has a molecular weight of 61.8 kD.

10 33. The method of claim 30, wherein the lectin is KML-IIL.

34. The method of claim 33, wherein the lectin has a molecular weight of 56.4 kD.

15 35. A gene encoding a lectin isolated from Korean mistletoe, comprising SEQ ID No 13.

36. A protein having SEQ ID NO 14.

20 37. A gene encoding a lectin isolated from Korean mistletoe, comprising SEQ ID NO 15.

38. A protein having SEQ ID NO 16.

25 39. A method of inducing IFN- γ comprising

administering to an animal Korean Mistletoe Heparin Binding Protein (KMHBHP).

40. A method of preparing Korean Mistletoe Heparin Binding Protein (KMHBHP) protein fraction by binding C-free AS to a heparin column, wherein the C-free AS is a portion of a KM-AS protein free of a KML-C lectin component.

41. A method of enhancing immunity comprising administering to an animal Korean Mistletoe Heparin Binding Protein (KMHBHP) protein fraction.

42. A mixture (KM) of KML-C and KMHBHP.

43. A method of enhancing immunity and effectuating antitumoral activity comprising use of a mixture (KM) of KML-C and KMHBHP.

44. A method of preparing a mixture (KM) of KML-C and KMHBHP by combining a lectin component KML-C and a protein fraction KMHBHP.

45. A pharmaceutical composition comprising a lectin isolated from Korean mistletoe; and a pharmaceutically acceptable carrier.

46. The pharmaceutical composition of claim 45,
wherein the lectin is selected from the group consisting of
KM-IIU and KM-IIL.

5 47. A pharmaceutical composition comprising a protein
fraction KMHBP; and
a pharmaceutically acceptable carrier.

10 48. A pharmaceutical composition comprising a mixture
(KM) of KML-C and KMHB; and
a pharmaceutically acceptable carrier.

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